



Top 10 tips to writing up your PhD: An Insider's Insight

Writing your PhD thesis can be a once-in-a-lifetime opportunity to contribute to your field, relate to your peers with similar interests, and challenge your understanding. While the process is incredibly rewarding, it is best to be appropriately prepared. So we've put together a handy guide – so you know exactly what to expect.

Before you start

Don't reinvent the wheel – look at other people's theses

Establish a style and format and use it for all your content

Make a plan (and stick to it)

Find a 'buddy' or colleague who is willing to help you by reviewing and commenting on your work

Prepare to succeed

Don't wait until you can capture the perfect way to describe your thoughts – START

Find efficient ways to work and keep going. Use tools to help you but don't spend too much time trying out every new gadget

Tell a story and write for impact

Take every opportunity to present and publish your work

Key Insights

It is important throughout your PhD studentship to keep in mind exactly what your 'study' is working towards. It is not about time served, number of words written or academics collaborations. Your thesis is intended to serve as confirmation of your ability to follow the scientific method.

Writing a thesis isn't easy. The average thesis contains around 60 – 65,000 words: equivalent in size to 'The Lord of the Flies' (William Golding). So it's no easy feat. Perhaps it is not surprising to hear that as it approaches your date for submission it starts to possess every waking thought (and non-waking thoughts).

We were recently comparing horror stories associated with our own PhDs. We discussed books that give insights into how to easily deliver your thesis [1-4]. We also remembered an article in a popular UK newspaper detailing 15 tips for writing a PhD thesis [5]. A quick look at Google found several similar blogs, articles and comments [6-13], and this was followed by horror stories much worse than our own [14, 15]. And yet, many PhD candidates meet this challenge each year. It can be done! And it can be overcome without too much stress, too many tears or total social isolation. With over 36 years of PhD study, and two 'failed' candidates in our team, we share here our own top 10 tips for surviving your PhD write-up.

One key point you should note as your focus turns to the minutiae of writing, do not forget the administrative side of the process: forms to fill in, how does the university want your thesis submitted (soft or hard bound), have the examiners been notified, how many copies do you need, etc.

What is a thesis?

A thesis is a self-contained document, written solely by the PhD candidate that describes a 'problem' that the candidate has worked on. The thesis should define the problem, review existing approaches to its understanding and identify through critical analysis a clear gap for a possible novel academic contribution. It should spell out a so-called hypothesis, which tests the proposed explanation for the problem.

A thesis should explain in (sufficient) detail the work undertaken to confirm your hypothesis and include a justification and critical evaluation of your approach. It typically involves a review of the existing literature, theoretical analysis, experimental design, experimentation, data collection and data analysis. All this should be brought together with a contextual description of your own findings, a clear conclusion and an outline of possible future research.

"A PhD is about finding out more and more about less and less until one eventually knows everything about nothing"

1. Cheat

Let's get this out of the way. You don't need to reinvent the wheel. There are aspects to all theses that are similar irrespective of their focus. Look at the work of other candidates. Different institutions have different requirements, so it is good if you can get a look at examples submitted to your university and even better if you can get a look at work in a similar field (and better still from your own laboratory). This really isn't cheating.

In the past, you would have gone to the university's central library to read a thesis submitted by a previous student. However, thanks to the British Library's e-thesis online initiative it is now possible to search and access almost all doctoral theses awarded by UK universities [www.ethos.bl.uk]. There are some gaps but at least 90% of all UK theses, some 400,000, are recorded. Similar initiatives are occurring in other countries. One of these examples is bound to be able to give you some inspiration in regards of what your thesis should look like.

2. Style and format

Once you appreciate what you are aiming to produce, you can save yourself even more time by establishing a style and format to adhere to (when writing). It is worth noting that most universities have a preferred style and format. It often defines aspects such as the numbering of headings, preferred reference format, page numbering, indexing, appendices... the list goes on.

Although it may be tempting to start writing and deal with formatting issues at the end we would advise against this – it can be time consuming and has the potential to introduce errors. The savvy student will create a master document template for all their writing, prepare a brief writing style guide and ensure that documents adhere to this standard when reviewing/editing their work. The 'Advice to Authors' provided by many scientific journals can serve as a good basic style guide if there isn't one already available for your university, alternatively you can ask us for a copy of our style guide (info@niche.org.uk).

3. Plan

Make a thesis plan. Your supervisor should help you structure your thesis and this will allow you to break-up the job into manageable chunks. An outline plan will empower you to create a directory structure on your computer – a hierarchy of folders where you can store the materials relevant to each section. Once populated with the available/relevant information it will help you perform a rough-and-ready 'gap analysis' – i.e. asking yourself whether one section is less well served than the others?

Don't underestimate the value of a professional, consistent style

Failure to be consistent can have consequences. It is important to remember that your reader will establish their first opinions of you (and consequently, your work) based on what they see. Lack of consistency and frequent spelling/grammar errors make us appear unprofessional. Your reader may misinterpret your intended meaning, or assume sloppiness in writing to reflect carelessness in your research approach and general attitude to work. Remember, scientific writing remains an exercise in convincing another scientist of the validity of your work.

The dedicated planner can use this information to build a writing schedule and/or submission activities plan. Although it can be difficult to visualise how you will squeeze the blood, sweat and tears – invariably associated with writing a thesis – into a production line, there are benefits to establishing even the most rudimentary of road maps that record appropriate milestones and time frames. The more structure you achieve the easier it is to get busy supervisors to commit to your timelines. It can also provide you with appropriate goals to work towards. It provides a truly committed supervisor with the opportunity to engage with the process and provide regular encouragement and help you achieve milestones and deadlines.

The Lilliputians' Dilemma

As with the difference between the Big-Endians (those who broke their eggs at the larger end) and Little-Endians, described in Gulliver's Travels, there are those who insist you should start writing your thesis with the results section, whereas others contest that you should start with the methods. The benefit of starting with the methods is that progress can be made quickly (as you surely know what you have done over the last 3 years) and it will also highlight any issues that you may need to resolve or explain when presenting the results. As it is generally straightforward, starting with the methods also allows you to establish a writing routine before the hard stuff starts. Contrastingly, if you decide to start writing with the results, it can stimulate you to think about the overall direction of your research and the message of the thesis. Formally writing out everything you've observed might also give you a fresh perspective on your work.

The choice is yours. Whatever your preference, it is generally agreed that you should tackle the introduction last. It is tempting to make your introduction the repository for everything you have learned about your field of study (perhaps, even, covering everything that has ever been written). However, it is much more time efficient to construct an introduction that focuses only on those points relating to your hypothesis and the direction of subsequent research.

4. Working practice

Now you know what you have to do and the time frame in which it needs to be delivered, START!

We appreciate that there is nothing more demoralising than sitting for hours staring unproductively at a computer screen. Throw something down on the page. Don't wait until you can capture the perfect way to describe your thoughts.

"It is the job that's never started as takes longest to finish" – JRR Tolkien – The Fellowship of the Ring

Nothing overcomes writers block like a page of freshly written text. However, it is also pretty depressing after thrashing at a keyboard for 18 hours to find you have produced 20,000 words of gibberish. To this end, it is advisable to seek out the conditions that help you work best. Research suggests that we are at our most creative in the morning and this is when we will most likely do our best writing. However, you might be a night owl. Find a time that works for you and schedule-in regular writing sessions.

Environment is also important. Many prefer to write in an office because it reflects their established 'work' setting. Others prefer the silence of a library. Whatever your preference, take advantage of any behavioural self-conditioning and routine to overcome deficiencies you may experience in motivation or focus.

5. Drafting

There is no escaping the fact that production of your final thesis is going to be the result of an iterative process – and that it is likely to involve many, many drafts. When you work on a section of your thesis it is best to create a first draft you can base it on work published by yourself, your team or others. Try to capture the concept. Then, leave it for a time and then come back to it with a critical eye. It is easier to edit and take away words than it is to add them.

You should enlist others to help. Nothing will benefit your thesis more than critical review by your peers; seek out review by others. Be prepared to grow a thick skin (not all the criticism will feel constructive). Take on board any comments and adapt your text accordingly.

6. Mentors and buddies

Although you alone are responsible for your thesis you don't need to produce it in isolation. Your supervisor is often a good source of support, although they may be too busy to give you help when you need it. For this reason, it is good to find a 'buddy' or colleague who can serve as a support, someone who you can measure yourself against, who can keep you to your milestones and goals and can provide a fresh pair of eyes from time to time. Fellow PhD students in the same institution can be a great source of support – as long as you don't become depressed if one seems to progress faster than yourself – remember, a PhD is your journey and everyone's road is different.

Equally important is finding someone who can serve as your mentor. Again, this might be your supervisor but they can be somewhat unsympathetic at the start of the writing process – when you probably need the greatest backing. Recent PhD graduates and post-docs can be a great support – the memory of their own writing experience is often fresh in their minds and so they better understand the anxieties you are facing.

7. Write for impact

Clearly, you should take into account everything your supervisor (and other reviewers) say and address their suggestions about revisions to your work; but you should also be true to your own style of writing. Remember, after 3 years of study, few people in the world are likely to be as well informed on this particular subject as yourself. This is your turn to shine. Academic writing does not have to be dry. Consider your opening paragraphs. Can you present your work in a manner that entices your reader? Experiment with your own writing style. This is your opportunity to counter the current trend for the reduction in the readability of scientific texts [18]. Above all, be clear about your hypothesis and your conclusions.

Make every effort to keep your thesis concise. Most universities don't have a minimum word limit and long gone are the days where the thesis was judged on its weight or number of pages. Provide material only where it adds value to your hypothesis and NOT where it serves to bulk out your thesis. Consider the reader at all times.

Plagiarism

Plagiarism is of growing concern within biomedical and life science studies. Research suggests that plagiarised text appears in nearly a third of submissions [16]. As a result, most institutions use plagiarism detection software.

You need to be aware of how to properly attribute and acknowledge the work, data and ideas of others. You will find some help here [17]. Plagiarism is considered scientific misconduct, and students whose thesis can be shown to contain plagiarism are often subject to penalties. However, in the case of PhD theses there is a certain leniency as to what actually counts as plagiarism. In particular, whether a student should be permitted to re-use their own work (for example material from a previous publication that they have written). Grey areas remain that require academic judgement.

It is acceptable academic practice for students to include material in their thesis written and published previously by themselves (including figures and text); however, they should clearly label the work and cite appropriately. Authors must not include material written by others (including their supervisor) without proper attribution, even if they are authors on such a publication.

There are sections of any thesis that will be similar to those of others and similar to publications in the scientific literature when put through plagiarism checker software programmes like Turnitin, Grammarly or iThenticate. Take for example, the Materials and Methods section. There are only a limited number of ways in which a particular method can be described accurately. While it is not good practice to simply cut and paste methods into your thesis, many institutions agree that students should not overtly contort their text simply to avoid similarity with other publications.

8. Publish

Perhaps the most irritating advice provided when you are doing a PhD is to start writing early. Great advice – but did you? If not, it is probably too late now. This advice can be frustrating for two reasons. First, the direction of your study can change dramatically, making any early writing worthless. Second, it implies that you have failed to appreciate the 3-year deadline when it has been hanging over your head since Day 1. Better advice might be to keep detailed records (particularly of equipment and reagents) of what you did and hard copies of any important scientific articles.

Take every opportunity to present and publish your work (even at this late stage – remember the administration behind organising your viva can take considerable time). Publications can serve as a mark in the sand that will be difficult for any examiner to question. Work that has faced review by your peers will serve to confirm the quality of your research. In addition, the associated consideration of the literature, preparation of figures and tables, coupled with the feedback it provides could serve to facilitate the speedy delivery of at least one part of your thesis.

Hint – when you ask someone to look at your work only give them small chunks. Anything more than 10 pages will seriously slow down their review, affect your relationship and most likely result in a refusal next time you ask.

Preparing your defence (a checklist)

As you approach the end of your travails keep focused, start preparing to defend your thesis:

- Prepare a one page summary of each chapter
- Keep up-to-date with current literature and work on publications
- Draft a list of points that explain how your work fits into 'the big picture' in theory and practice
- Practice explaining your thesis and hold a mock viva (with your supervisor)
- Investigate the research interests of your examiners (once you know who they are)
- Identify areas of your thesis most likely to be challenged. Produce a list of likely questions (and the answers)

Tell a story

Imagine yourself as your examiner. Ahead of you lies 80,000 words/300 pages of data and deliberation produced by a young and inexperienced scientist. A daunting task! How can you make their journey through your thesis more pleasant (and thus view you in a positive light)?

The answer, tell them a story. The only reason any sane person would read 80,000 words, equivalent in length to the book 'Nineteen Eighty Four' or 'The Catcher in the Rye', is for the story. Your introduction should be the setting for the mystery ahead, the method your journey and the results the great wonders that your protagonist experienced along the way. The discussion should be your 'great reveal', a happy ending. All of them should be set to a logical narrative that you follow to the roads end.

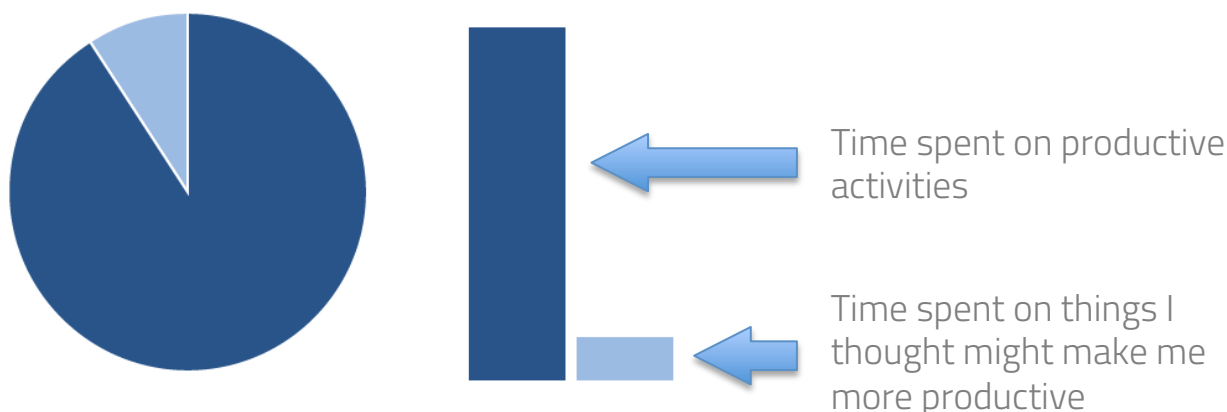
9. Software, gadgets and shortcuts

Many guides to writing a PhD thesis advise you to employ various tools that can make organisation and completion of your project easier. Perhaps the most frequently discussed and firmly recommended is the use of some form of reference manager database (such as Mendeley or Endnote). The benefits are obvious – you can quickly and effortlessly populate your reference section without error. You can also keep your bibliography up to date (as you go) and easily change the format they are presented in if required. But what do you miss?

Even the most well referenced thesis should cite no more than 300 publications. As an expert in your field you should be pretty conversant with each of these articles. Traditionally, this familiarity would come from revisiting key references, repeatedly. Take care that reference management software doesn't dissociate you from the literature and, as you can download every title to emerge from a literature search, it can encourage you to lose focus as to which citations include the most important and relevant work.

Other tools are also recommended. Chief among these are project management and time-keeping software programmes. You can find various options reviewed here [19]. It is important to consider the trade-off between potential benefits and the time it takes to become proficient in the use of any new tool or application.

Weekly performance statistics



10. Make backups

The final point may seem obvious and perhaps even out-dated. With the event of cloud-based and institutional mass storage options there seems little point in keeping your own copies of your work files.

There are two reasons you are wrong. The first is that disasters happen – be prepared. The second is that institutions/services don't last forever, passwords can be forgotten and old files sent to backup heaven – from which return can be impossible or at least highly improbable (while writing I checked my own thesis several times for confirmation – both the hospital and the hospital that took over from that hospital have long-since closed).

Rewards

Most guides recommend you take regular breaks while writing – it is advised you view them as little rewards for each sub-section you complete, or as an opportunity to move around a bit or think about something else for a while. It can stop the work becoming too monotonous or tiring, and will actually mean you can concentrate better when you return to writing.

However, you must remain resolved and maintain discipline. For example, if writing a section that is particularly difficult or boring, take a 5-minute break for every 300 words. Importantly, when you are on a roll just kept going.

Abstracts and Acknowledgements

By the time you get to this stage you might be forgiven for thinking that you are coming to the end. And, to be honest, you are. But beware, you are coming to two of the thorniest sections of the thesis.

The first is the abstract. For obvious reasons this is the last scientific section of your thesis you are likely to write – because only when the rest of the text is complete will you know what it contains and which are the best bits to summarise. Once you have checked the requirements of your institution it should be straightforward. However, it is good to remember that this is most likely the first aspect of your thesis that most of your readers will see [20]. It is also likely to be the aspect of your thesis that will be stored on searchable electronic databases. It will remain a testament to your work for years to come as the science your work was based on continues to move forward. Keep this in mind, an extra hour of word-smithing at this point could keep you looking good for an additional decade.

It is a small world, and it is very possible that you will meet that person who let you use their centrifuge 2 years ago again in the future. So this is your opportunity to thank everyone (and we mean everyone) for their help in your acknowledgements. No doubt you will thank your mum and dad, your supervisor and the people you shared your lab with. But think hard who else you might include – it is hard to rectify an accidental omission or oversight after the event.

And finally....

In our (humble) opinions, perseverance and finishing the job are the two most important traits and qualities you need to write up your thesis (almost as important as getting some results). Make sure that every encounter with your supervisor is worthwhile to you both – nothing will alienate him/her more than you having made no progress and having nothing new to report. Yes the writing process is hard work. Yes it takes time. But, with the completion of each chapter you are another milestone closer to the future. If things get too dark you can cheer yourself up by visiting the PhD comic website which documents almost every eventuality you might experience during your study [www.phdcomics.com], or by watching 'The PhD Movie' and/or 'The PhD Movie 2' [21]. You may however find it too close for comfort and prefer to document your progress with your own cartoons.



One last point, there will be times when you hate your thesis – and good luck in achieving a feeling of anything more than doubt over its contribution to science. After the relief of completion, you will most likely feel some kind of anti-climax. The journey is somewhat solitary (certainly compared with other types of study you will have completed), and so is celebration of its completion. If you (ever) review your PhD thesis in the future it is likely that you will find it to be filled with errors and inconsistencies. But remember to see it for what it was. The journey you make serves as your apprenticeship. The thesis itself marks your promotion from apprentice to journeyman scholar and its approval by your peers represents their recognition of you as a master of your craft. Congratulations!



References

1. How to write a PhD in Less than 3 years: A practical guide. 18 Oct 2010 by Steven Harrison
2. Authoring a PhD: How to Plan, Draft, Write and Finish a Doctoral Thesis or Dissertation (Palgrave Study Guides) 28 Apr 2003 by Patrick Dunleavy
3. How to Research & Write a Successful PhD 1 Aug 2013 by Dr Kathleen McMillan and Dr Jonathan Weyers
4. Writing Your Dissertation in Fifteen Minutes a Day Paperback – 1 Aug 1998 by Joan Bolker (Author)
5. Kim Thomas Finishing your PhD thesis: 15 top tips from those in the know <https://www.theguardian.com/higher-education-network/blog/2014/aug/27/finishing-phd-thesis-top-tips-experts-advice> Wednesday 27 August 2014 07.00 BST
6. 10 tips for writing a PhD thesis Ingrid Curl 10 tips for writing a PhD thesis: Ingrid Curl shares simple rules for keeping your work clear and jargon-free <https://www.timeshighereducation.com/student/advice/what-phd-advice-phdstudents>
7. 10 Tips For Writing Your Thesis* <https://thebiochemist.wordpress.com/2014/12/> December 15, 2014
8. 10 tips to finishing your PhD faster: What they don't always tell you before you sign up for graduate school <https://www.elsevier.com/connect/10-tips-to-finishing-your-phd-faster> Rodney E. Rohde, PhD Posted on 23 October 2013
9. 10 tips towards PhD thesis submission Salma Patel 16 Nov 2016 <https://phdlife.warwick.ac.uk/2016/11/16/10-tips-towards-phd-thesis-submission/>
10. 10 ways to ensure you write a good PhD thesis www.earlham.ac.uk/articles/10-ways-ensure-you-write-good-phd-thesis August 05, 2016 Peter Bickerton
11. Surviving a PhD – 10 Top Tips... July 16, 2012 · by Dr Alex Hope <https://thesiswhisperer.com/2012/07/16/surviving-a-phd-10-top-tips/>
12. Top 10 Tips for Writing PHD Thesis <http://www.topteny.com/top-10-tips-writing-phd-thesis/>
13. Top Tips on writing your PhD thesis 07 Aug 2014 | 11:11 BST | Posted by Julie Gould | Category: Social media
14. What are some PhD horror stories? <https://www.quora.com/What-are-some-PhD-horror-stories>
15. PhDs: 'toxic' supervisors and 'students from hell' How should universities handle breakdowns in PhD student-supervisor relationships? April 7, 2016 Jack Grove <https://www.timeshighereducation.com/news/phds-toxic-supervisors-and-students-from-hell>
16. Vieyra M, Strickland D, B Timmerman Patterns in plagiarism and patchwriting in science and engineering graduate students' research proposals Int J Ed Integ Vol. 9 No. 1 June, 2013 pp. 35–49 ISSN 1833-2595
17. Good but not original: An Insider's Insight into Plagiarism. <http://www.niche.org.uk/asset/insider-insight/Insider-Plagiarism.pdf> accessed 25 July 2017
18. The Readability Of Scientific Texts Is Decreasing Over Time. Plaven-Sigray, P et al., eLife doi: 10.7554/eLife.27725
19. Top 11 project management tools for 2016; 28 Mar 2016 Robin Muilwijk <https://opensource.com/business/16/3/top-project-management-tools-2016>
20. An Insider's Insight into Amazing Abstracts <http://www.niche.org.uk/asset/insider-insight/Insider-Amazing-Abstracts.pdf>
21. <https://www.phdmovie.com>

How can Niche help?

The Niche team are always eager to share their knowledge and experience. With over 45 years of PhD study (and two 'failed' candidates) in our team, we thought that we are probably well-placed to share our own insights in the form of our top 10 tips for surviving your PhD write-up.

We hope that this guide will be use to you or any friend, colleague or family member that may be facing the challenge of writing up their thesis now or in the near future.

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